

**DRAFT 5**

**CITY OF DURHAM, NC**  
**PRE-APPROVED MATERIAL/PRODUCT LIST**

Last revised 4/11/17

Last Revision: — ~~6/16/16 R4~~ 4/11/17 R5

Effective Date: \_\_\_\_\_, 2017

- Check all hyperlinks
- Revise “Effective Date” each sht

Contract Number: \_\_\_\_\_

**LINKS TO SPECIFIC PRODUCTS**

[Above Ground Utility Enclosures](#)  
[Aluminum Vault Hatches](#)  
[AMR Disc and Antenna](#)  
[Copper Tubing](#)  
[Corporation Stops](#)  
[DIP-Push-On Joints](#)  
[DIP-Restrained Push-On Joints](#)  
[Ductile Iron Fittings](#)  
[Fire Hydrants](#)  
[Flanged Coupling Adapters](#)

[Meter Setter – 5/8” & 1”](#)  
[Meter Setters - 1 ½” & 2”](#)  
[Meter Boxes](#)  
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[Meters - Turbine](#)  
[Pipe Saddle Support Stand](#)  
[Precast Conc Meter Vaults](#)  
[Restrained Joint Glands](#)  
[Steel Encasement Pipe & Spiders](#)

[Tapping Service Saddle](#)  
[Tapping Sleeves](#), Ductile Iron  
[Valves - Air Release](#)  
[Valves - Angle Ball Valve](#)  
[Valve Box](#)  
[Valves - ¼ Turn SS Ball Valves](#)  
[Valves - 2-inch](#)  
[Valves –Large](#)  
[Warning Tape – Magnetic](#)  
[Yard Hydrant](#)

**Water Distribution**  
**PRE-APPROVED MATERIAL/PRODUCT LIST**  
**City of Durham**

## PRE-APPROVED MATERIAL/PRODUCT LIST

### Water

#### Ductile Iron Pipe / Push-On Joint

**Specification Section:** 33 11 13

**Standard Details:** N/A

**Standard:**

AWWA C104/ANSI A21.4, Cement Mortar Lining for DIP and fittings,

AWWA C111/ANSI A21.11, Rubber gaskets for DIP pressure pipe and fittings,

AWWA C151/ANSI A21.51, DIP, pressure class 250 or greater,

Gaskets: American Amarillo Fast-Grip Gaskets (4" through 30") with high-strength stainless steel (for use in any Fastite or Flex-Ring sockets), yellow.

Interior Lining: Cement Mortar,

Exterior Coating: Zinc based coat with asphaltic topcoat conforming to ISO 8179-1.

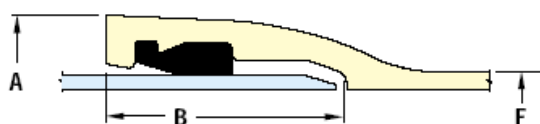
NSF/ANSI Standard 61

NSF/ANSI 372 (low lead content).

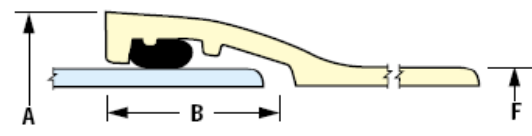
Eighteen or twenty-foot standard joint lengths



**FASTITE JOINT Pipe 4" – 36"**



**TYTON JOINT Pipe 4" – 36"**



Approved Manufacturer/Product	Size	Pressure Class
<input type="checkbox"/> American Cast Iron Pipe - Fastite	6-inch to 48-inch	6" - 12" Minimum 350 psi 16" - 48" Minimum 250 psi
<input type="checkbox"/> McWane - Tyton	6-inch to 48-inch	6" - 12" Minimum 350 psi 16" - 48" Minimum 250 psi
<input type="checkbox"/> U.S. Pipe and Foundry Co - Tyton	6-inch to 48-inch	6" - 12" Minimum 350 psi 16" - 48" Minimum 250 psi

**LINKS TO MANUFACTURERS:**

- American Cast Iron Pipe: <http://www.american-usa.com/products>
- McWane: <http://mcwaneductile.com/resources/specifications>
- US Pipe and Foundry Co: <http://www.uspipe.com/products/ductile-iron-pipe/ty>

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## PRE-APPROVED MATERIAL/PRODUCT LIST

### Water

#### Ductile Iron Fittings

**Specification Section:** 33 11 13

**Standard Details:** 512.01, 512.05, 513.01, 516.05, 516.06

**Standard:**

AWWA C110/ANSI A21.10 Ductile Iron and Gray Iron Fittings (Full Body Fittings)

AWWA C153/ANSI A21.53 DIP (Compact Fittings )

NSF/ANSI Standard 61

NSF/ANSI 372 (low lead content)



Approved Manufacturer/Product	Size	Pressure Class	Joint Type
<input type="checkbox"/> American Cast Iron Pipe	6-inch to 48-inch	6" – 24" = Minimum 350 psi >24 – 48" = Minimum 250 psi	MJ
<input type="checkbox"/> McWane Ductile	6-inch to 48-inch	6" – 24" = Minimum 350 psi	MJ
<input type="checkbox"/> Star Pipe Products	6-inch to 48-inch	6" – 24" = Minimum 350 psi >24 – 48" = Minimum 250 psi	MJ
<input type="checkbox"/> U.S. Pipe and Foundry Co.	6-inch to 48-inch	>24 – 48" = Minimum 250 psi	MJ

**LINKS TO MANUFACTURERS:**

- American Cast Iron Pipe: <http://www.american-usa.com/products>
- McWane Ductile: <http://www.mcwaneductile.com/products/>
- Star Pipe Products: <http://www.starpipeproducts.com/pdf/utility/catalog/UCAT1501/UCAT1501.pdf>
- US Pipe and Foundry Co: <http://www.uspipe.com/products/ductile-iron-fittings/mechanical-joint-fittings>

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## PRE-APPROVED MATERIAL/PRODUCT LIST

### Water

#### Ductile Iron Restrained Push-on Joint/TR Flex Joint Pipe (4" – 36")

**Specification Section:** 33 11 13

**Standard Details:** N/A

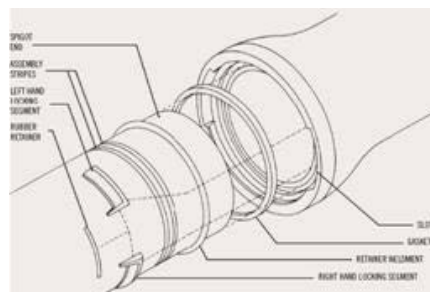
**Standard:** Ductile Iron locking segments, inserted through a slot (or slots) in the bell face, to provide a positive axial lock between the bell interior surface and a retainer weldment on the spigot end of the pipe; used with standard size Tyton gasket. Eighteen or twenty-foot standard joint lengths.

AWWA C104/ANSI A21.4, Cement Mortar Lining for DIP and fittings,  
AWWA C111/ANSI A21.11, Rubber gaskets for DIP pressure pipe and fittings,  
AWWA C150/ANSI A21.50, Thickness Design of Ductile-Iron Pipe  
AWWA C151/ANSI A21.51, DIP, pressure class 250 or greater.

Interior Lining: Cement Mortar

Exterior Coating: Zinc based coat with asphaltic topcoat conforming to ISO 8179-1.

NSF/ANSI Standard 61; NSF/ANSI 372 (low lead content).



Approved Manufacturer/Product	Size	Pressure Class	Joint Type
<input type="checkbox"/> American Cast Iron Pipe	4" thru 36"	4"-24" Minimum 350 psi 30" thru 36" Minimum 250 psi	Restrained Push-On Joint/Flex-Ring Joint
<input type="checkbox"/> McWane, Inc.	6" thru 36"	4"-24" Minimum 350 psi 30" thru 36" Minimum 250 psi	TR FLEX Restrained Push-On Joints.
<input type="checkbox"/> U.S. Pipe and Foundry Co.	4" thru 36"	4"-24" Minimum 350 psi 30" thru 36" Minimum 250 psi	TR FLEX Restrained Push-On Joints.

**LINKS TO MANUFACTURERS:**

- American Cast Iron Pipe: <http://www.american-usa.com/products/ductile-iron-pipe-and-fittings/restrained-joint-pipe/flex-ring-joint-pipe>
- McWane, Inc.: <http://www.mcwanepipe.com/upl/downloads/library/pipes-tr-flex-joint-pipe-submittal-sheet.pdf>
- US Pipe and Foundry Co: [http://www.uspipe.com/upload/products/ductile-iron-pipe/tr-flex-ductile-iron-pipe-and-fittings/tr-flex/RC\\_USP-0533%20BRO-009%20TR%20FLEX%20Brochure%20v17.pdf](http://www.uspipe.com/upload/products/ductile-iron-pipe/tr-flex-ductile-iron-pipe-and-fittings/tr-flex/RC_USP-0533%20BRO-009%20TR%20FLEX%20Brochure%20v17.pdf)

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## PRE-APPROVED MATERIAL/PRODUCT LIST

### Water

#### Small Valves - 2-inch (FIPT X FIPT)

**Specification Section:** 33 12 16

**Standard Details:** 514.04

**Standard:**

2" Iron Body, Resilient seat, open right, with indicator meeting AWWA C509 Resilient-Seated Gate Valves for Water Supply Service or C515 Reduced-Wall, Resilient-Seated Gate Valves for Water Supply Service. All exposed hex head nuts/bolts must be stainless steel.

AWWA C550 Protective Interior Coatings for Valves and Hydrants

NSF/ANSI 61, NSF/ANSI 372 (low lead content).



Approved Manufacturer/Product	Gate Valves	
<input type="checkbox"/> Kennedy Valve	<input type="checkbox"/> KS-RW 8057	<input type="checkbox"/> KS-RW 7057
<input type="checkbox"/> McWane Ductile (formerly Clow Valve Company)	<input type="checkbox"/> 2639	<input type="checkbox"/> 2640
<input type="checkbox"/> Mueller Company	<input type="checkbox"/> A-2360 Series	
<input type="checkbox"/> M&H Valve Company	<input type="checkbox"/> 4067-07	

**LINKS TO MANUFACTURES:**

- Kennedy Valve: <http://www.kennedyvalve.com/products/catalog/gate-valves/>
- McWane Ductile: <http://www.clowvalve.com/upl/downloads/resources/product-brochures/c509-2-12.pdf>
- Mueller Company: <http://www.muellercompany.com/files/Water%20Section%2010.pdf>
- M&H Valve Company: <http://www.mh-valve.com/products/catalog/gate-valves/>

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## PRE-APPROVED MATERIAL/PRODUCT LIST

### Water

### Large Valves

**Specification Section: 33 12 16**
**Standard Details:**

Gate Valves: 513.01, 513.02, 513.05, 513.06, 514.01, 514.03

Butterfly Valves: 513.03

**Standard:** Open right with indicator, All exposed nuts/bolts must be stainless steel on all valves.

4" through 12": AWWA C509, C550; Cast Iron Body 4"-12" resilient-seat wedge gate valves with ANSI/AWWA C110/A21.10 Mechanical Joints; ANSI/ASME B16.1, Class 125 flanged end joints.

16" through 48": AWWA C504, C550; Ductile Iron (ASTM A36 [65-45-12]) Rubber Seated Butterfly Valve, Class 250 with ANSI/AWWA C110/A21.10 mechanical joints; ANSI/ASME B16.42, Class 150 flanged end joints.

NSF/ANSI 61, NSF/ANSI 372 (low lead content).




Approved Manufacturer/Product	Gate Valves	Tapping Valves	Butterfly Valves (min class 150B)
<input type="checkbox"/> American	<input type="checkbox"/> 2500 Series	<input type="checkbox"/> 2500 Series	
<input type="checkbox"/> McWane (formerly Clow Valve Company)	<input type="checkbox"/> F-6100/OR	<input type="checkbox"/> F-6114/OR	<input type="checkbox"/> F-5370/OR
<input type="checkbox"/> Dezurick	<input type="checkbox"/> -	<input type="checkbox"/> -	<input type="checkbox"/> BAW
<input type="checkbox"/> Mueller Company	<input type="checkbox"/> 2360	<input type="checkbox"/> T-2360	<input type="checkbox"/> Linesal
<input type="checkbox"/> M & H Valve Co.	<input type="checkbox"/> 4067-01R	<input type="checkbox"/> 4751-01R	<input type="checkbox"/> 4500-01R
<input type="checkbox"/> Henry Pratt Company	<input type="checkbox"/> -	<input type="checkbox"/> -	<input type="checkbox"/> 2M2 or equal
<input type="checkbox"/> Val-Matic	<input type="checkbox"/> -	<input type="checkbox"/> -	<input type="checkbox"/> Series 2000

**LINKS TO MANUFACTURERS:**

- American: <http://www.american-usa.com/products/valves-and-hydrants/2-12-series-2500-resilient-wedge-gate-valves>
- McWane Ductile: <http://www.clowvalve.com/upl/downloads/resources/product-brochures/c509-2-12.pdf>
- Dezurick: <http://www.dezurick.com/products/product-line/butterfly-valves/awwa-butterfly-valves-baw/2/7/>
- Mueller Company: <http://www.muellercompany.com/files/Water%20Section%2010.pdf>
- M&H Valve Company: <http://www.mh-valve.com/products/catalog/gate-valves/>
- Henry Pratt Company: <http://www.henrypratt.com/products/?CatID=1>
- Val-Matic: <http://www.valmatic.com/pdfs/BFV-OM1-3.pdf>

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<b>PRE-APPROVED MATERIAL/PRODUCT LIST</b> <b>Water</b>			
<b>Valves, SS ¼-Turn Ball</b>			
<b>Specification Section:</b> 33 12 16 <b>Standard Details:</b> 516.09 <b>Standard:</b> <p>2-inch and smaller, heavy duty, 2-piece, full port, stainless steel ¼-turn high pressure ball valve, conforming to MSS-SP-110 and/or API-598, with PTFE seats &amp; stem thrust bearing with 304 stainless steel handle with vinyl insulator,</p> <p>NSF/ANSI 61</p> <p>NSF/ANSI 372 (low lead content).</p>			
<b>Approved Manufacturer/Product</b>	<b>Ball Valves</b>		
<input type="checkbox"/> Watts	<input type="checkbox"/> S-FBV-1		
<input type="checkbox"/> Apollo	<input type="checkbox"/> 76-100 Series		
<b>LINKS TO MANUFACTURERS:</b> <ul style="list-style-type: none"> <li>Watts: <a href="http://www.watts.com/pages/products_details.asp?pid=566">http://www.watts.com/pages/products_details.asp?pid=566</a></li> <li>Apollo: <a href="http://www.apollovalves.com/products/76-100/TS_76-100.pdf">http://www.apollovalves.com/products/76-100/TS_76-100.pdf</a></li> </ul>			
Last Revision: <u>4/13/17</u> Effective Date: <u>  </u> , 2017			

## PRE-APPROVED MATERIAL/PRODUCT LIST

### Water

#### Angle Ball Service Valves

**Specification Section:** 33 12 16

**Standard Details:** 514.04

**Standard:**

2-inch, angle ball service valves meeting AWWA C800 *Underground Service Line Valves and Fittings*, 300 psi working pressure, Compression x IP Thread.

NSF/ANSI 61,

NSF/ANSI 372 (low lead content).



Approved Manufacturer/Product	Angle Ball Valves		
<input type="checkbox"/> Ford	BA41-777W-NL		
<input type="checkbox"/>			

**LINKS TO MANUFACTURERS:**

- Ford Meter Company: <http://www.fordmeterbox.com/catalog/g/flippingbook/files/gipeg.pdf>

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## PRE-APPROVED MATERIAL/PRODUCT LIST

### Water

#### Fire Hydrants

**Specification Section:** 33 12 19

**Standard Details:** 514.01, 514.02, 514.03

**Standard:**

6" MJ inlet, 5-1/4" valve, (1) 4 1/2-inch pumper nozzle with integral 5" Storz Nozzle (Harrington), (2) 2 1/2-inch hose nozzles with Higbee Cut National Standard threads, 1 1/2" pentagonal operating nut. Hydrants to be all Federal Safety Red. Hydrant to open left. Order Fire Hydrant by depth w/ maximum total of 12-inches for extension (when permitted by City Engineer). Fire hydrant barrel extensions are available in increments of 6-inches, starting at 6-inches long.

AWWA C502 Dry Barrel Fire Hydrants,

AWWA C550 Protective Interior Coatings for Valves and Hydrants,

UL 246, FM 1510,

NSF/ANSI 61,

NSF/ANSI 372 (low lead content).



Approved Manufacturer/Product	Model	Dewatering	Bury Depth
<input type="checkbox"/> American Darling	Mark-73		4-foot
<input type="checkbox"/> McWane Ductile (formerly Clow Valve Company)	F-2545 Medallion		4-foot
<input type="checkbox"/> M&H	Style 129		4-foot
<input type="checkbox"/> Mueller Company	A-423 Super Centurion 250		4-foot

**LINKS TO MANUFACTURES:**

- American Darling: <http://www.american-usa.com/products/valves-and-hydrants/fire-hydrants/4-1-2-american-darling-mark-73-5>
- McWane Ductile: <http://www.clowvalve.com/products/catalog/hydrants/>
- M&H Valve Company: <http://www.mh-valve.com/products/catalog/hydrants/>
- Mueller Company: <http://catalog.muellercompany.com/viewdocument.ashx?t=d&i=179>

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Effective Date:   , 2017

## PRE-APPROVED MATERIAL/PRODUCT LIST

### Water

#### Yard Hydrant (Freezeless)

(for Sanitary Sewer Pump Stations and other locations where specified)

**Specification Section: -**
**Standard Details: -**
**Standard:**

- 125-psi maximum working pressure,
- Maximum Temperature: 120° F,
- NSF/ANSI 61, NSF/ANSI 372 (low lead content).
- Galvanized Steel Pipe
- ¾" Removable Brass Male Hose Nozzle
- Rod guide and adjustable Link
- Graphite packing
- All repairs made from top of unit without removing hydrant from ground.

Minimum Bury Depth = 36"



Approved Manufacturer/Product	¾-inch Model	1-inch Model
<input type="checkbox"/> Clayton	<input type="checkbox"/> Mark #5451, ¾" NPT inlet at base of valve body, ¾" male hose thread	-
<input type="checkbox"/> Merrill	-	<input type="checkbox"/> C-1000 Series, Hi-Capacity, 1" NPT inlet at base of valve body, ¾" male hose thread
<input type="checkbox"/> Woodford Freezeless IOWA	<input type="checkbox"/> Model Y34: ¾" NPT inlet at base of valve body, ¾" male hose thread	<input type="checkbox"/> Model Y1: 1" NPT inlet at base of valve body, ¾" male hose thread

**LINKS TO MANUFACTURERS:**

- Clayton: <http://claytonmarkmfg.com/>
- Merrill: <http://www.merrillmfg.com/product/01-YardHydrants/C-1000/features.php>
- Woodford Freezeless IOWA: [http://www.woodfordmfg.com/woodford/Yard\\_Hydrant\\_Pages/Model-y34.html](http://www.woodfordmfg.com/woodford/Yard_Hydrant_Pages/Model-y34.html)

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## PRE-APPROVED MATERIAL/PRODUCT LIST

### Water

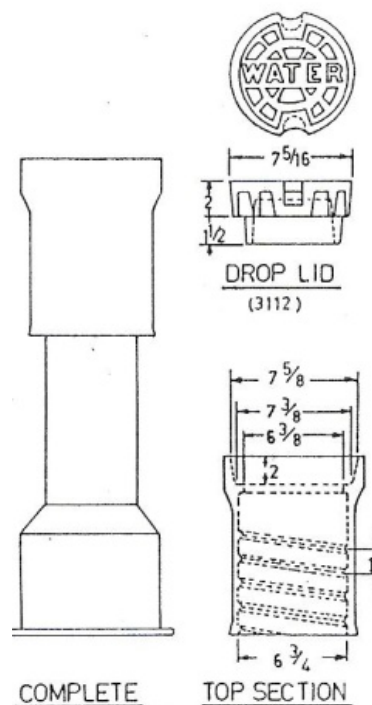
#### Valve Boxes

**Specification Section:** 33 12 16

**Standard Details:** 513.01, 513.02, 513.05, 513.06,  
514.01, 514.03, 514.04, 516.03, 516.07

**Standard:**

- Cast Iron, Screw Type, 5 ¼" shaft, ASTM A48, Grade 35, Bituminous coating.
- Slide or slip type is NOT acceptable.



Approved Manufacturer/Product	Model Number
<input type="checkbox"/> Capitol Foundry of Virginia	461S (Range 19-22 inches) 562S (Range 27-37 inches) 564S (Range 39-50 inches) 664S (Range 39-60 inches)
<input type="checkbox"/> General Foundries, Inc.	32462 (Range 27-32 inches) 32562 (Range 27-37 inches) 32563 (Range 33-43 inches) 32564 (Range 39-50 inches)
LINKS TO MANUFACTURERS: • Capitol Foundry of Virginia: <a href="http://www.capitolfoundry.net/valve-boxes---cleanouts">http://www.capitolfoundry.net/valve-boxes---cleanouts</a> • General Foundry: <a href="http://www.generalfoundriesinc.com/catalog/pdf/Valve%20&amp;%20Curb%20Boxes.pdf">http://www.generalfoundriesinc.com/catalog/pdf/Valve%20&amp;%20Curb%20Boxes.pdf</a>	
Last Revision: <u>4/13/17</u> Effective Date: <u>  </u> , 2017	

## PRE-APPROVED MATERIAL/PRODUCT LIST

### Water

#### Ductile Iron Body Tapping Sleeve

**Specification Section:**
**Standard Details:** 513.01

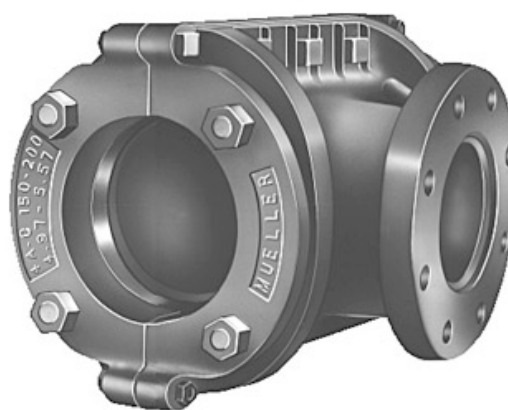
**Standard:**

ASTM A536, Full length heavy duty Ductile Iron Body Mechanical Joint Tapping Sleeve, 200 psi minimum working pressure (4"-12") with end joint accessories and split glands.

NSF/ANSI 61,

NSF/ANSI 372 (low lead content).

Stainless steel not permitted!




Approved Manufacturer/Product	Number	Sizes
<input type="checkbox"/> American Flow Control	Series 2800	4-inch through 12-inch
<input type="checkbox"/> Mueller	H-615 (for DI, CI & PVC pipe)	4-inch through 12-inch

**LINKS TO MANUFACTURERS:**

- American Flow Control: <http://www.american-usa.com/resources/technical-manuals/series-2800-tapping-sleeves-product-manual-06-07-2011>
- Mueller: <http://catalog.muellercompany.com/Catalog/DI-MJ-Tapping-Slv-Cent-Cast-CI-DI-PVC-Pg-122/444>

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<b>PRE-APPROVED MATERIAL/PRODUCT LIST</b> <b>Water</b>	
<b>Copper Tubing</b>	
<b>Specification Section:</b> 33 12 13 <b>Standard Details:</b> 514.04, 516.01 <b>Standard:</b> Seamless, Type K, Soft, ASTM B88; domestic made. NSF/ANSI 61 NSF/ANSI 372 (low lead content) No joints allowed between main and meter box.	
<b>Approved Manufacturer/Product</b>	<b>Sizes</b>
<input type="checkbox"/> Mueller Industries	1-inch to 2-inch (allowable up to 3")
<input type="checkbox"/>	
<b>LINKS TO MANUFACTURERS:</b> <ul style="list-style-type: none"> <li>Mueller Industries: <a href="http://www.muellerindustries.com/product/copper_tube">http://www.muellerindustries.com/product/copper_tube</a></li> </ul>	
Last Revision: <u>4/14/17</u> Effective Date: <u>  </u> , 2017	

## PRE-APPROVED MATERIAL/PRODUCT LIST

### Water

#### Corporation Stop with Grip Joint

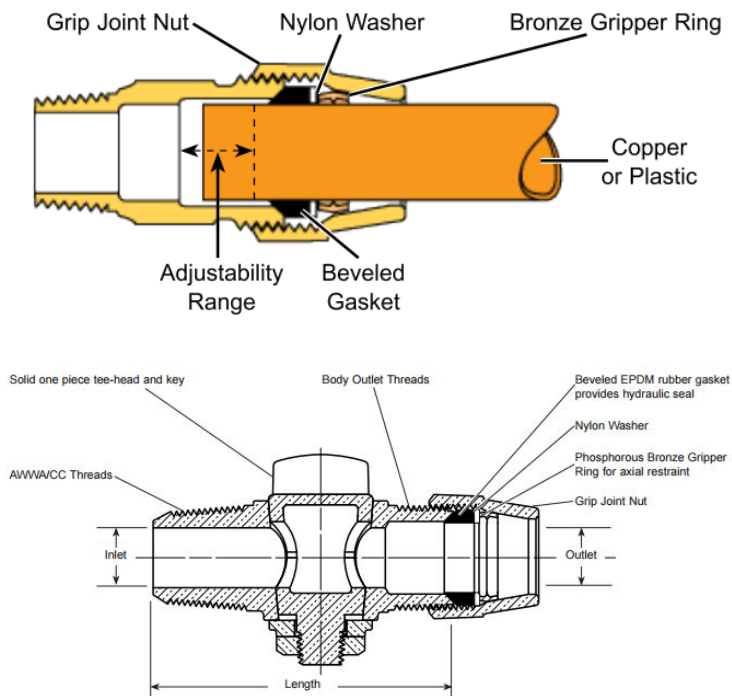
(Grip Joint assembly shown on a coupling in top image; corp stop in bottom image)

**Specification Section:** 33 12 13

**Standard Details:** 513.04, 516.01

**Standard:**

Fitting shall be solid one-piece tee-head and key plug valve, minimum 100 psi working pressure per AWWA C800 requirement with AWWA CC tapered threaded inlet by Grip Joint for copper or plastic tubing (CTS) (3/4" through 2") outlet; fitting to conform to AWWA C800 *Underground Service Line Valves and Fittings*. All brass components that come in contact with potable water shall be of no-lead alloy UNS/CDA NO C89833. Brass components that do not come in contact with potable water shall conform to ASTM B62 and ASTM B584, UNS NO C83600 – 85-5-5-5. Minimum 100 psi working pressure for 1-inch and smaller and 80 psi for 1 1/4" through 2" sizes (per AWWA C800 requirement). All services that exceed allowable direct tap size require a double strap bronze saddle. NSF/ANSI 61, NSF/ANSI 372 (low lead content).



Approved Manufacturer/Product	Number	Size
<input type="checkbox"/> The Ford Meter Box Co.	<input type="checkbox"/> F1000-3-G-NL (NL=No Lead) <input type="checkbox"/> F1000-6-G-NL <input type="checkbox"/> F1000-7-G-NL	1-inch 1 1/2-inch 2-inch
<input type="checkbox"/> Mueller	<input type="checkbox"/> H-15008N <input type="checkbox"/> - <input type="checkbox"/> -	1-inch 1 1/2-inch 2-inch
<input type="checkbox"/> A. Y. McDonald -- Prohibited	-	-

**LINKS TO MANUFACTURERS:**

- The Ford Meter Box Company: <http://www.fordmeterbox.com/submittals/F1000-x-G-NL.pdf>
- Mueller: <http://catalog.muellercompany.com/Catalog/122-Ground-Key-Corporation-Valves-110-CTS-110-IPS-PE-PJ-CTS-Pg-58/87>

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## PRE-APPROVED MATERIAL/PRODUCT LIST

### Water

#### Angle Ball Valves

(Bottom image shows 1 1/2-inch angle ball valve w/ meter flange X grip joint for CTS)

**Specification Section:**
**Standard Details:** 514.04, 516.01

**Standard:**

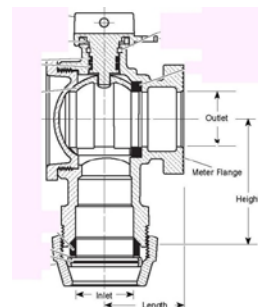
Ball valves shall have minimum 80 psi working pressure, Meter Flange x Grip Joint for CTS and conform to AWWA C800 *Underground Service Line Valves and Fittings*.

All brass components that come in contact with potable water shall be of no-lead alloy UNS/CDA NO C89833.

Brass components that do not come in contact with potable water shall conform to ASTM B62 and ASTM B584, UNS NO C83600 – 85-5-5-5.

NSF/ANSI 61

NSF/ANSI 372 (low lead content).



Approved Manufacturer/Product	Number	Size
<input type="checkbox"/> The Ford Meter Box Co., Inc.	<input type="checkbox"/> BA43-444W-G-NL (NL=No Lead) <input type="checkbox"/> BFA43-666W-G-NL <input type="checkbox"/> BFA43-777W-G-NL	1-inch 1 1/2-inch 2-inch
<input type="checkbox"/> Mueller/300 Ball Angle Meter Valve	<input type="checkbox"/> B-24258N Swivel nut x compression for CTS <input type="checkbox"/> B-24276N <input type="checkbox"/> B-24276N	1-inch 1 1/2-inch 2-inch

**LINKS TO MANUFACTURERS:**

- The Ford Meter Box Company:  
<http://www.fordmeterbox.com/products/productview.php?catSec=G&subSec=Flange%20Meter%20Valves&heading=Angle%20Ball%20Flange%20Meter%20Valves&table=BFA43>
- Mueller: <http://catalog.muellercompany.com/Catalog/Angle-Ball-Meter-Valves-110-CTS-PJ-CTS-1122-meters-Pg-8D2/309>

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## PRE-APPROVED MATERIAL/PRODUCT LIST

### Water

#### 5/8" and 1" Meter Setters

Inlet/Outlet Service Line Connections = Pack Joint X Pack Joint  
(Setter image shows Quick Joint Nut connections [not permitted])

**Specification Section:** 33 12 13

**Standard Details:** 516.01

**Standard:**

Meter setter to have a ¼-turn key valve with padlock wing inlet at meter and a cascading dual check valve at meter outlet. Setter to have a 12" riser height (from centerline of the service line to centerline of the meter spud) and a brace eye at base. Yoke inlet/outlet service line connections to be Pack Joint X Pack Joint. Setter to conform to AWWA C800 *Underground Service Line Valves and Fittings*.

All brass components that come in contact with potable water shall be of no-lead alloy UNS/CDA NO C89833. Brass components that do not come in contact with potable water shall conform to ASTM B62 and ASTM B584, UNS NO C83600 – 85-5-5-5., Copper conforms to ASTM B75, Copper Alloy #122,

NSF/ANSI 61

NSF/ANSI 372 (low lead content).



Approved Manufacturer/Product	Number	Size
<input type="checkbox"/> The Ford Meter Box Co.	<input type="checkbox"/> VHH71-12W-44-33-6-NL	5/8-inch
	<input type="checkbox"/> VHH74-12W-44-44-6-NL	1-inch
LINKS TO MANUFACTURERS: • The Ford Meter Box Company: <a href="http://www.fordmeterbox.com/catalog/f/fjpeg.pdf">http://www.fordmeterbox.com/catalog/f/fjpeg.pdf</a>		
Last Revision: <u>4/14/17</u> Effective Date: <u>  </u> , 2017		

## PRE-APPROVED MATERIAL/PRODUCT LIST

### Water

#### 1 ½" and 2" Meter Setters

**Specification Section:** 33 12 13

**Standard Details:** 516.04

**Standard:**

Meter setter to have a ¼-turn key valve flanged inlet and outlet with padlock wing. Setter to have a 18" riser height with a high by-pass and a key valve with padlock wing. Meter flange valves on copper setter to have meter support brackets.

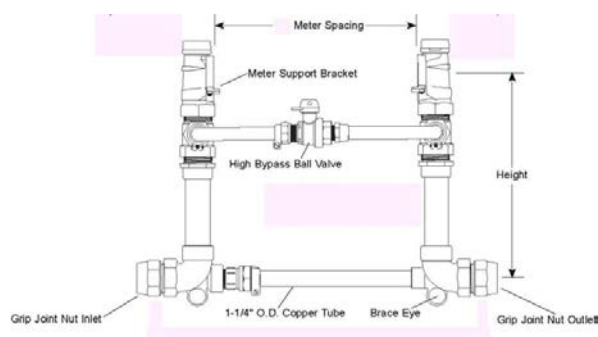
Yoke inlet/outlet service line connections to be Grip Joint X Grip Joint. Setter to have brace pipe eyelets.

Setter to conform to AWWA C800 *Underground Service Line Valves and Fittings*.

All brass components that come in contact with potable water shall be of no-lead alloy UNS/CDA NO C89833. Brass components that do not come in contact with potable water shall conform to ASTM B62 and ASTM B584, UNS NO C83600 – 85-5-5-5, Copper conforms to ASTM B75, Copper Alloy #122,

NSF/ANSI 61

NSF/ANSI 372 (low lead content)



Approved Manufacturer/Product	Number	Size
<input type="checkbox"/> The Ford Meter Box Co.	<input type="checkbox"/> VV76-18HB-44-66-G-24-NL	1 ½-inch
	<input type="checkbox"/> VV77-18HB-44-77-G-24-NL	2-inch
<b>LINKS TO MANUFACTURERS:</b> The Ford Meter Box Company: <a href="http://www.fordmeterbox.com/catalog/f/fjpep.pdf">http://www.fordmeterbox.com/catalog/f/fjpep.pdf</a>		
Last Revision: <u>4/12/17</u> Effective Date: <u>  </u> , 2017		

## PRE-APPROVED MATERIAL/PRODUCT LIST

### Water

#### Meters - Turbine

(Image: Meter shown w/ E-Coder®)R900i™)

**Specification Section:** 33 12 13

**Standard Details:** -

**Standard:**

Turbine water meters shall meet or exceed the latest performance and accuracy requirements of AWWA C701 *Cold-Water Meters -- Turbine Type, for Customer Service*. Turbine meters shall consist of a rugged, corrosion-resistant, lightweight, compact, lead free, high-copper alloy maincase, an AWWA Class II turbine measuring element, and a roll-sealed register. Inlet and outlet connections are to be flanged. Turbine measuring element to have direct coupling of rotor to gear train to prevent slippage.

Maximum operating pressure = 175 psi.

NSF/ANSI 61 and Annex F

NSF/ANSI 372 (low lead content);

Meters to be Neptune ARB Utility Management System, E-Coder®) R900i™ radio read system, 9-digit LCD display (to read in cubic feet).



**Approved Manufacturer/Product**

**Number**

**Size**

☐ Neptune Technology Group

☐ HP

☐ 3-inch, ☐ 4-inch  
☐ 6-inch, ☐ 8-inch  
☐ 10-inch

**LINKS TO MANUFACTURERS:**

- Neptune Technology Group: <https://www.neptunetg.com/globalassets/products/literature/15-ntg-405-ps-hp-turbine-1.5-10-08.15.pdf>

Last Revision: 4/14/17

Effective Date:   , 2017

## PRE-APPROVED MATERIAL/PRODUCT LIST

### Water

#### Meters – Compound

**(2", 3", 4", 6" and 6"x8")**

(Image: Meter shown w/ E-Coder®)R900i™)

**Specification Section:** 33 12 13

**Standard Details:** 516.04, 516.05

**Standard:**

Compound water meters shall meet or exceed the latest performance and accuracy requirements of AWWA C702 *Cold-Water Meters - Compound Type*.

Compound meters shall consist of a rugged, light-weight, corrosion-resistant, lead free, high-copper alloy maincase, a high performance measuring element, Neptune T-10 chamber and two magnetic-driven, roll-sealed registers. Inlet and outlet connections are to be flanged.

Maximum Operating pressure = 150 psi.

Meters to be Neptune ARB Utility Management System, E-Coder®) R900i™ radio read system, 9-digit LCD display (to read in cubic feet).

NSF/ANSI 61 and Annex F  
NSF/ANSI 372 (low lead content);



Approved Manufacturer/Product	Number	Size
<input type="checkbox"/> Neptune Technology Group	<input type="checkbox"/> Tru/Flo 2" HP Compound Meter	<input type="checkbox"/> 2-inch
<input type="checkbox"/> Neptune Technology Group	<input type="checkbox"/> Tru/Flo Compound Meter	<input type="checkbox"/> 3-inch <input type="checkbox"/> 4-inch <input type="checkbox"/> 6-inch <input type="checkbox"/> 6" x 8"

**LINKS TO MANUFACTURERS:**

- Neptune Technology Group: <https://www.neptunetg.com/globalassets/products/literature/14-ntg-747-ps-truflo-02.14.pdf>

Last Revision: 4/12/17

Effective Date:   , 2017

## PRE-APPROVED MATERIAL/PRODUCT LIST

### Water

#### Meter Boxes

**Specification Section:** 33 12 13

**Standard Details:** 515.02, 516.01

**Standard:** LLDPE Black Polymer Box with AMR/AMI solid black HDPE lid.

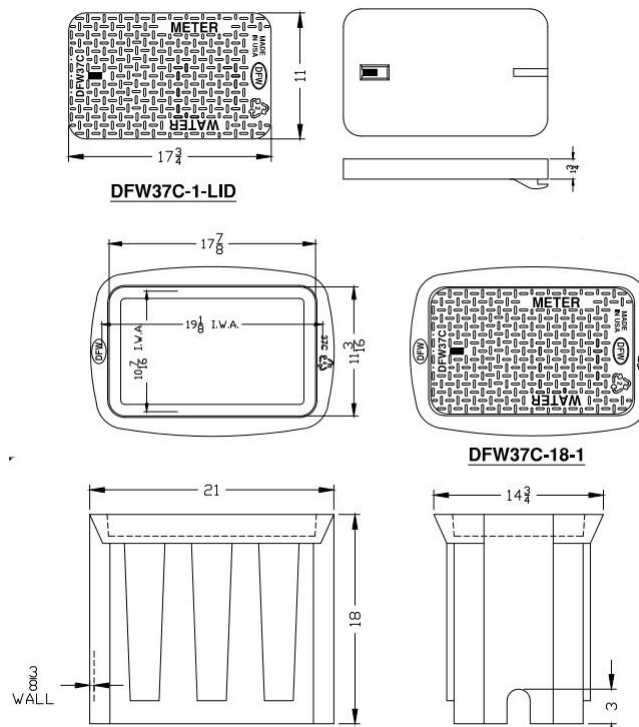
**5/8" Meters:**

Meter boxes are to be DFW Plastics Inc. model DFW37C-18 for 5/8" meters, or approved equal. Meter box lids are to be DFW Plastics Inc. model DFW37C-1EA for 5/8" meters, or approved equal.

**1" Meters:**

Meter boxes are to be DFW Plastics Inc. model DFW1324C-18 for 1" meters, or approved equal. Meter box lids are to be DFW Plastics Inc. model DFW1324C-1EA for 1" meters, or approved equal.

DFW37C-18-BODY  
(shown below)




Approved Manufacturer/Product	Size	Number	Size
<input type="checkbox"/> DFW Plastics, Inc.	5/8"	<input type="checkbox"/> DFW37C-18	17"x11"x18" Body
<input type="checkbox"/> DFW Plastics, Inc.	5/8"	<input type="checkbox"/> DFW37C-18-1EA	Lid
<input type="checkbox"/> DFW Plastics, Inc.	1"	<input type="checkbox"/> DFW1324C-18	13"x24"x18" Body
<input type="checkbox"/> DFW Plastics, Inc.	1"	<input type="checkbox"/> DFW1324C-18-1EA	Lid

LINKS TO MANUFACTURERS:

- DFW Plastics, Inc.: <http://www.dfwplasticsinc.com/products/specifications/c-series-specifications>

Last Revision: 4/11/17

Effective Date:     , 2017

<b>PRE-APPROVED MATERIAL/PRODUCT LIST</b> <b>Water</b>			
<b>AMR Meter Interface Unit (MIU)</b>			
<b>Specification Section:</b>			
<b>Standard Details:</b> 516.01, 516.04, 516.05, 516.06			
<b>Standard:</b> <b>Electrical Specifications:</b> <ul style="list-style-type: none"> <li>• MIU Power: Lithium battery with capacitor</li> </ul> <b>Transmitter Specifications:</b> <ul style="list-style-type: none"> <li>• Two-way MIU</li> <li>• Transmit period (interleaved mobile and fixed network messages):               <ul style="list-style-type: none"> <li>○ Standard mobile message every 14 seconds at 100 mW</li> <li>○ Standard fixed network message every 7 ½ minutes at 1 Watt.</li> </ul> </li> <li>• FCC Verification: Part 15.247               <ul style="list-style-type: none"> <li>○ Transmitter channels: 50; frequency-hopping, spread spectrum.</li> <li>○ Channel frequency: 910-920 MHz</li> </ul> </li> <li>• Encoder register reading interval:               <ul style="list-style-type: none"> <li>○ Every 15 minutes</li> </ul> </li> <li>• Data logging interval:               <ul style="list-style-type: none"> <li>○ 96 days of hourly data.</li> </ul> </li> </ul> <b>Environmental Conditions:</b> <ul style="list-style-type: none"> <li>• Operating Temp: -22°F to +149°F</li> <li>• Operating Humidity: 100% condensing</li> </ul> <b>Antennas:</b> <ul style="list-style-type: none"> <li>• Wall MIU: Standard internal antenna</li> <li>• Pit MIU: Standard through-the-lid antenna:               <ul style="list-style-type: none"> <li>○ 18" Coax</li> <li>○ 6' Coax</li> <li>○ 20' Coax</li> </ul> </li> </ul>			
<input type="checkbox"/> Neptune Technology Group	-	<input type="checkbox"/> R900® Wall MIU	-
<input type="checkbox"/> Neptune Technology Group	-	<input type="checkbox"/> R900® Pit MIU	-
<b>LINKS TO MANUFACTURERS:</b> <ul style="list-style-type: none"> <li>• Neptune Technology Group: <a href="https://www.neptunetg.com/globalassets/products/literature/15-ntg-511-ps-r900-rf-miu-11.15.pdf">https://www.neptunetg.com/globalassets/products/literature/15-ntg-511-ps-r900-rf-miu-11.15.pdf</a></li> </ul>			
Last Revision: <u>4/11/17</u> Effective Date: <u>  </u> , 2017			

## PRE-APPROVED MATERIAL/PRODUCT LIST

### Water

#### Mechanical Joint Restraint (Retainer) Glands

**Specification Section:**

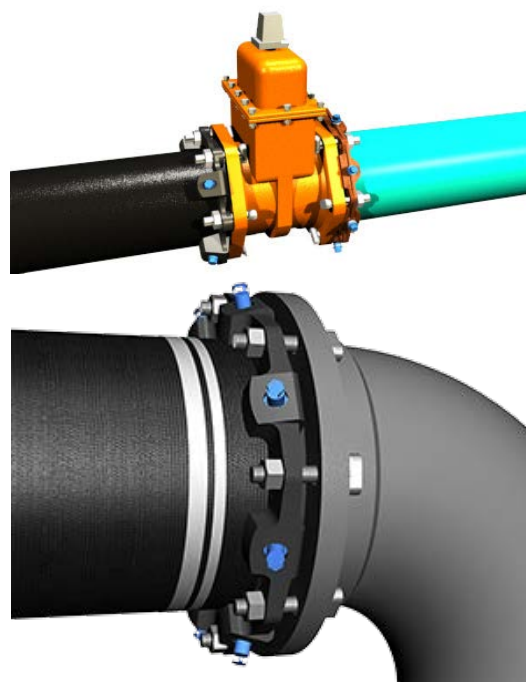
**Standard Details:** 512.04, 513.01, 513.02, 513.05, 513.06, 514.01, 514.03, 516.01

**Standard:**

Restraint for standard mechanical joint fittings on ductile iron pipe shall be incorporated in the design of the follower gland and shall utilize multiple wedge segments that act against the pipe, increasing their resistance as the line pressure increases. The assembled joint shall maintain the maximum flexibility and deflection of all nominal pipe sizes after burial. Restraining gland, wedge segments, and actuating bolts shall be manufactured of high strength ductile iron conforming to the requirements of ASTM A536, Grade 65-45-12. Breakaway tops shall be incorporated in the design of the actuating bolts to visually ensure proper torque.

Dimensions shall be compatible with standardized mechanical joints conforming to the requirements AWWA C111/ANSI A21.11 *Rubber-Gasket Joint for Ductile Iron Pressure Pipe and Fittings* and AWWA C153/ANSI 21.53 *Ductile Iron Compact Fittings*. Mechanical Joint Restraint Glands to be compatible with AWWA C151/ANSI A21.51 *Ductile-Iron Pipe, Centrifugally Cast*.

The mechanical joint restraining devices shall have a minimum working pressure rating of 350-psi for sizes 3"-16" and 250-psi for 18" and larger and provide no less than a safety factor of 2:1.



Approved Manufacturer/Product	Product
<input type="checkbox"/> EBBA Iron Sales, Inc.	Megalug Series 1100 (not permitted w/o Engineer's approval)
<input type="checkbox"/> The Ford Meter Box Company, Inc.	Uni-Flange Series 1400
<input type="checkbox"/> Sigma	One-Lok Wedge Action Restrainer Gland
<input type="checkbox"/> Smith-Blair	Cam-Lock
<input type="checkbox"/> Tyler Union	TUFgrip

**LINKS TO MANUFACTURERS:**

- EBBA Iron Sales, Inc.: <http://www.ebaa.com/files/pdf/brochures/Brochure.1100.pdf>
- Ford: <http://www.fordmeterbox.com/submittals/submittals.php?catSec=U&subSec=Restraint+Devices&heading=Series+1400&table=UFR1400>
- Sigma: <http://www.sigmaco.com/pipe-restraint-products/>

- 
- Smith-Blair: <http://smith-blair.com/index.php?mod=solutions&mid=1&sid=1>
- Tyler Union: <http://tylerunion.com/upl/downloads/catalog/products/submittal-sheet-series-1000-domestic-f2471ad4.pdf>

Last Revision: 4/13/17

Effective Date:   , 2017

## PRE-APPROVED MATERIAL/PRODUCT LIST

### Water

#### 1-inch and 2-inch Air Release

**Specification Section:**
**Standard Details:** 516.07

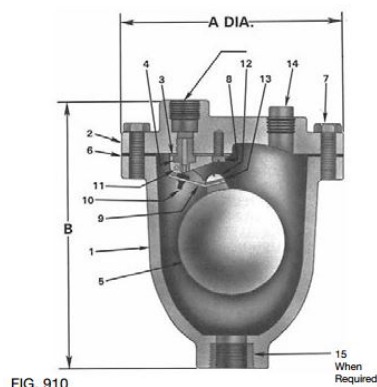
**Standard:**

Air release valves shall have a Cast Iron A126, Class B body and cover with 316 stainless steel internal operating parts (i.e. leverage bracket, orifice, float, float arm, springs, etc). Air release valves shall conform to AWWA C512 *Air-Release, Air/Vacuum, and Combination Air Valves for Waterworks Service*.

Valve body working pressure shall be rated at 300 psi.

NSF/ANSI 61

NSF/ANSI 372 (low lead content).



Approved Manufacturer/Product	Product	Model
<input type="checkbox"/> G. A. Industries	<input type="checkbox"/> 1-inch <input type="checkbox"/> 2-inch	<input type="checkbox"/> Fig 910 <input type="checkbox"/> Fig 920
<input type="checkbox"/> Crispin-Multiplex Manufacturing Co.	<input type="checkbox"/> 1-inch <input type="checkbox"/> 2-inch	<input type="checkbox"/> Type "N" PL 10 <input type="checkbox"/> Type "N" PL 20
<input type="checkbox"/> Val-Matic	<input type="checkbox"/> 1-inch <input type="checkbox"/> 2-inch	<input type="checkbox"/> Model #22.3 <input type="checkbox"/> Model # 45

**LINKS TO MANUFACTURERS:**

- Crispin-Multiplex Manufacturing Co.: <http://www.crispinvalve.com/crispin%20web%20pdfs/presairweb.pdf>
- G. A. Industries: <http://www.environmental-expert.com/companies/ga-industries-inc-7996/products/family-distributor-automatic-air-release-valves-244851#distributor-automatic-air-release-valves>
- Val-Matic: <http://www.valmatic.com/airrelease.html>

Last Revision: 4/15/17

Effective Date:    , 2017

## PRE-APPROVED MATERIAL/PRODUCT LIST

### Water

#### Tapping Service Saddles

**Specification Section:** 33 12 13

**Standard Details:** 513.04, 516.07

**Standard:** All Bronze double strap service saddle casting, straps and nuts with integral washers shall conform to AWWA C800 Underground Service Line Valves and Fittings. 200 psi maximum working pressure.

Brass components shall conform to ASTM B62 and ASTM B584, UNS C83600 -85-5-5 (latest revision).

Outlet to be tapped for AWWA CC tapered threads. Gaskets/O-ring to be ASTM D2000 EPDM rubber gasket.

NSF/ANSI 61, NSF/ANSI 372, (low lead content)



Approved Manufacturer/Product	Size	Model
<input type="checkbox"/> AY McDonald Mfg. Company	<input type="checkbox"/> 1-inch <input type="checkbox"/> 1 ½-inch <input type="checkbox"/> 2-inch	<input type="checkbox"/> 3825 <input type="checkbox"/> 3825 <input type="checkbox"/> 3825
<input type="checkbox"/> The Ford Meter Box Co.	<input type="checkbox"/> 1-inch <input type="checkbox"/> 1 ½-inch <input type="checkbox"/> 2-inch	<input type="checkbox"/> 202B <input type="checkbox"/> 202B <input type="checkbox"/> 202B
<input type="checkbox"/> Mueller	<input type="checkbox"/> 1-inch <input type="checkbox"/> 1 ½-inch <input type="checkbox"/> 2-inch	<input type="checkbox"/> BR2B <input type="checkbox"/> BR2B <input type="checkbox"/> BR2B
<input type="checkbox"/> Romac Industries, Inc.	<input type="checkbox"/> 1-inch <input type="checkbox"/> 1 ½-inch <input type="checkbox"/> 2-inch	<input type="checkbox"/> 202B <input type="checkbox"/> 202B <input type="checkbox"/> 202B
<input type="checkbox"/> Smith-Blair	<input type="checkbox"/> 1-inch <input type="checkbox"/> 1 ½-inch <input type="checkbox"/> 2-inch	<input type="checkbox"/> 325 Series <input type="checkbox"/> 325 Series <input type="checkbox"/> 325 Series

**LINKS TO MANUFACTURES:**

- AY McDonald Mfg. Company: <http://www.aymcdonald.com/en-US/Bronze-and-Ductile-iron-ac-or-cast-iron-od-pipe-awwacc-thread.html>
- The Ford Meter Box Co.: <http://www.fordmeterbox.com/products/productview.php?catSec=AA&subSec=Brass%20Saddles&heading=Brass%20Saddles%20For%20Ductile%20Iron%20Pipe%20And%20A/C%20Pipe&table=202B>
- Mueller: <http://www.muellercompany.com/files/Section4%208.pdf>
- Romac Industries, Inc: <http://www.romac.com/saddles/202B.html>
- Smith-Blair: <http://smith-blair.com/index.php?mod=solutions&mid=1&sid=5>

Last Revision: 4/13/17

Effective Date: \_\_, 2017

## PRE-APPROVED MATERIAL/PRODUCT LIST

### Water

#### Flanged Coupling Adapters

**Specification Section:** 33 12 13

**Standard Details:** 516.05

**Standard:**

Iron flanged coupling adapters shall conform to AWWA C219 *Standard for Bolted, Sleeve-Type Couplings for Plain-End Pipe*.

Ductile iron body and end rings to conform to ASTM A536 65-45-12. Finish to have epoxy coating. Minimum 150 psi working pressure.



Gaskets to be SBR per ASTM D2000 90M 4AA 810.

NSF/ANSI 61



Approved Manufacturer/Product	Size
<input type="checkbox"/> The Ford Meter Box Co.	<input type="checkbox"/> FFCA
<input type="checkbox"/> Smith-Blair	<input type="checkbox"/> 912 (Cast); 913 (Steel)
<input type="checkbox"/>	<input type="checkbox"/>
LINKS TO MANUFACTURERS <ul style="list-style-type: none"> <li>The Ford Meter Box Co.: <a href="http://www.fordmeterbox.com/products/productview.php?catSec=M&amp;subSec=Flanged%20Coupling%20Adapter&amp;heading=Style%20FFCA&amp;table=FFCA">http://www.fordmeterbox.com/products/productview.php?catSec=M&amp;subSec=Flanged%20Coupling%20Adapter&amp;heading=Style%20FFCA&amp;table=FFCA</a></li> <li>Smith-Blair: <a href="http://smith-blair.com/assets/pdf/product_brochures/pb_912.pdf">http://smith-blair.com/assets/pdf/product_brochures/pb_912.pdf</a></li> </ul>	
Last Revision: <u>4/13/17</u> Effective Date: <u>  </u> , 2017	

PRE-APPROVED MATERIAL/PRODUCT LIST	
Water	
Hydraulic Coupling	
<b>Specification Section:</b> <b>Standard Details:</b> <b>Standard:</b> <p>Ductile Iron straight, transition and reducing couplings meeting AWWA C219 <i>Standard for Bolted, Sleeve-Type Couplings for Plain-End Pipe</i> with shop applied fusion bonded epoxy coatings. The end rings and center rings are to be cast from ductile iron meeting or exceeding ASTM A536.</p> <p>Gaskets are to be SBR compounded for water and sewer service in accordance with ASTM D2000 MBA 710.</p> <p>Center ring to fusion bonded epoxy in accordance with AWWA C213 and NSF 61 certified.</p> <p>Bolts and nuts to be 304 SS Hardware.</p> <p>260 psi minimum working pressure for sizes up to 16" and 232 psi minimum working pressure for sizes 18"-24".</p> <p>NSF/ANSI 61</p>	 <p>Macro HP</p>   <p>501 (color coded end rings)</p> <p>Hymax 2000</p>
<b>Approved Manufacturer/Product</b> <input type="checkbox"/> Krausz Hymax <input type="checkbox"/> Romac <input type="checkbox"/> Romac	<b>Approved Manufacturer/Product</b> <input type="checkbox"/> Hymax® 2000 Wide Range Coupling Adapter (AWWA C219 Design) <input type="checkbox"/> 501 (AWWA C219 Design) <input type="checkbox"/> Macro HP (6"-12") (ASTM A536, Grade 65-45-12)
<b>LINKS TO MANUFACTURERS:</b> <ul style="list-style-type: none"> <li>Krausz: <a href="http://krauszusa.com/wp-content/uploads/2015/10/HYMAX_low_ver19-FINAL.pdf">http://krauszusa.com/wp-content/uploads/2015/10/HYMAX_low_ver19-FINAL.pdf</a></li> <li>Romac: <a href="http://www.romac.com/couplings/501.html">http://www.romac.com/couplings/501.html</a></li> <li>Romac: <a href="http://www.romac.commacro/">http://www.romac.commacro/</a></li> </ul>	
Last Revision: <u>4/13/17</u> Effective Date: <u>  </u> , 2017	

PRE-APPROVED MATERIAL/PRODUCT LIST		
Water		
Bore and Jack Operations		
<b>Specification Section:</b>		 
<b>Standard Details:</b> C07.01, C07.02, C07.03		
Standard:		
<p>ASTM A139 <i>Standard Specification for Electric-Fusion (Arc)-Welded Steel Pipe (NPS 4 and Over)</i>, 35,000 psi minimum yield strength, Grade B steel pipe casing,</p> <p>ASTM A283 <i>Standard Specification for Low and Intermediate Tensile Strength Carbon Steel Plates</i>.</p> <p>Casing Spacers: T-304 Stainless Steel, minimum 14 gauge bands and 10 gauge risers, with UHMW Polyethylene or EPDM skids. All hardware to be stainless steel and welds chemically passivated.</p>		
<b>Approved Vendors</b>	<b>Casing Spacers/Spiders</b>	<b>End Seals</b>
<a href="#">See Bore &amp; Jack Operations under Sewer</a>		
Last Revision: <u>4/14/17</u> Effective Date: <u>  </u> , 2017		

## PRE-APPROVED MATERIAL/PRODUCT LIST

### Water

#### Adjustable Pipe Saddle Support

**Specification Section:** 33 12 13

**Standard Details:** 516.05, 516.06, 516.10

**Standard:**

Adjustable pipe saddle support to consist of a cast iron saddle, locknut nipple, and special cast iron reducer assembly. Adjustable pipe saddle supports are to comply with Federal Specification A-A-1192A (Type 38), WW-H-171-E (Type 39), ANSI/MSS SP-69 and MSS SP-58 (Type 38).

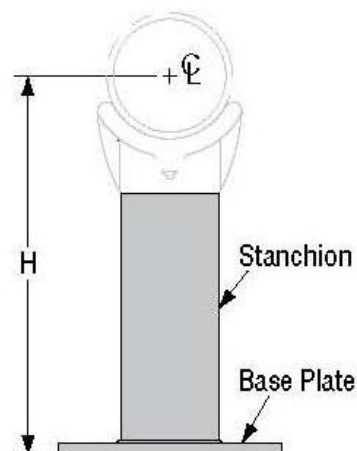
Adjustment is obtained by turning the locknut nipple. The lower end of the nipple is staked, upsetting the threads to prevent separation of nipple and coupling during adjustment. Vertical adjustment range up to 4 ½".

Saddle support to match supported pipe size.

**Materials:**

1. Steel for saddles and base plate to conform to ASTM A36 *Standard Specification for Carbon Structural Steel*.
2. Stanchion collar and base cups and tubing: ASTM A53/ASTM A513.

Finish: Galvanized. In areas prone to frequent wetness or standing water, the pipe saddle support assembly is to be 100% 304L or 316L stainless steel.



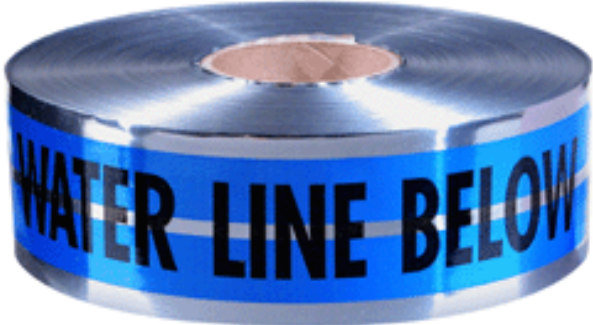
Approved Manufacturer/Product	Dry Conditions	Wet or Harsh Corrosive
<input type="checkbox"/> Anvil International, Inc	<input type="checkbox"/> Figures 259 or 264	<input type="checkbox"/>
<input type="checkbox"/> Material Resources, Inc.	<input type="checkbox"/> Standon Model S92	<input type="checkbox"/> Standon Model S92

**LINKS TO MANUFACTURERS:**

- Anvil International, Inc.: <http://www.anvilintl.com/ProductSearch/productthumbnailview.aspx?plid=106&ptid=603>
- Material Resources, Inc.: <http://www.standon.net/pdf/s92specsheel.pdf>

Last Revision: 4/13/17

Effective Date:   , 2017

<b>PRE-APPROVED MATERIAL/PRODUCT LIST</b> <b>Water</b>		
<b>Detectable Warning Tape</b> <i>(required on all open cut service lines)</i>		
<b>Specification Section:</b>		
<b>Standard Details:</b> 516.01		
<b>Standard:</b>  Designed as a three-layer sandwich with a layer of foil encased between two layers of plastic. Minimum overall thickness to be 5.0 mil (nominal).  Aluminum foils is to be visible from both sides. Tape is locatable by conductive and inductive methods and is to be acid and alkali resistant. Tape is to be supplied in accordance the APWA National Color Code.  Tape shall conform as applicable to: <ol style="list-style-type: none"> <li>1. ASTM D2103 <i>Standard Specification for Polyethylene Film and Sheeting</i></li> <li>2. , ASTM D882 <i>Standard Test Method for Tensile Properties of Thin Plastic Sheeting</i></li> <li>3. ASTM D2578 <i>Standard Test Method for Wetting Tension of Polyethylene and Polypropylene Films</i></li> </ol>		
<b>Approved Manufacturer/Product</b>	<b>Product</b>	
<input type="checkbox"/> Empire Level Mfg. Corp.	<input type="checkbox"/> Magnatec	
<b>LINKS TO MANUFACTURES:</b> <ul style="list-style-type: none"> <li>Empire Level Mfg. Corp: <a href="http://www.empirelevel.com/utility-products/premium-detectable/Premium%20Detectable%20Underground.pdf">http://www.empirelevel.com/utility-products/premium-detectable/Premium Detectable Underground.pdf</a></li> </ul>		
Last Revision: <u>4/13/17</u> Effective Date: <u>  </u> , 2017		

## PRE-APPROVED MATERIAL/PRODUCT LIST

### Water

#### Aluminum Hatches

(Water Meter Vaults)

**Specification Section:** 33 12 13

**Standard Details:** 515.04, 516.05, 516.06, and 516.07 (if applicable)

**Standard:**

Material: Minimum ¼" thick diamond plate aluminum door leaves reinforced for either pedestrian rated (150 psf/300 psf live load, as applicable) or traffic rated (H-20).

Frame: Extruded aluminum channel frame with bend down anchor tabs around the perimeter. Framed designed to drain.

Hinges: Heavy forged type 316 stainless steel hinges

Latches: Type 316 stainless steel slam lock with fixed interior handle and removable exterior turn/lift handle.

Lift Assistance: Compression spring operator enclosed in telescopic tubes. Automatic hold-open arm with grip handle release automatically locks cover(s) in open position. Lifting handle does not protrude above the cover.

Hardware: Type 316 stainless steel throughout.



Approved Manufacturer/Product	Product	Application
<b>Pedestrian Rated</b>		
<input type="checkbox"/> US Foundry & Manufacturing Corp.	<input type="checkbox"/> APS300 26x36 w/OP (300 psf)	<input type="checkbox"/> 1 ½" & 2" Water Meter Vault
<input type="checkbox"/> Bilco Company	<input type="checkbox"/> KD-4 (150 psf)	<input type="checkbox"/> Large Meter Vault (4"-8")
<b>Traffic Rated</b>		
<input type="checkbox"/> Lindsay Concrete (formerly Stay-Right)	<input type="checkbox"/>	<input type="checkbox"/> 1 ½" & 2" Water Meter Vault
	<input type="checkbox"/>	<input type="checkbox"/> Large Meter Vault (4"-8")
<input type="checkbox"/> Bilco	<input type="checkbox"/> JAL-H20 series	<input type="checkbox"/> 1 ½" & 2" Water Meter Vault
	<input type="checkbox"/> JDAL-H20 series	<input type="checkbox"/> Large Meter Vault (4"-8")

**LINKS TO MANUFACTURERS**

- Bilco: [http://www.bilco.com/foundations/store/scresults.asp?nav=7\\*98\\*Aluminum-Doors-Floor-Access-Doors](http://www.bilco.com/foundations/store/scresults.asp?nav=7*98*Aluminum-Doors-Floor-Access-Doors)
- Lindsay Concrete: <http://lindsayprecast.com/index.php/precast-concrete-utility-products/>
- US Foundry & Mfg Corp: <http://www.usffab.com/usffab-products/catalog/categories>

Last Revision: 4/14/17

Effective Date:   , 2017

## PRE-APPROVED MATERIAL/PRODUCT LIST

### Water

#### Precast Concrete Meter Vaults

**Specification Section:** 33 12 13

**Standard Details:** 516.05, 516.06

**Standard:**

Concrete for precast structures shall have normal weight aggregate and a minimum compressive strength ( $F_c$ ) at 28 days of 5,000 psi. Concrete shall conform to ASTM C913 *Standard Specification for Precast Concrete Water and Wastewater Structure* and C890 *Standard Practice for Minimum Structural Design Loading for Monolithic or Sectional Precast Concrete Water and Wastewater Structures*. Concrete shall be proportioned, mixed, and placed in accordance with ACI 318, latest revision. No admixtures shall be added to any structural concrete without written permission of the City's Engineer.

Reinforcing Steel: ASTM A615, Grade 60,  $f_y = 60$  ksi. Fabrication and placement of reinforcing steel shall be in accordance with ACI 315, latest revision.

Loadings: Reinforced precast concrete meter vaults shall be rated either as pedestrian traffic (300 psf) or H-20, as applicable. Refer to ASCE 7-10 (or latest revision) for other loading requirements as may be applicable.



Approved Manufacturer/Product	Detail	Size
<input type="checkbox"/> Concrete Pipe & Precast, LLC (formerly Hanson Pipe and Precast and Americast)		
<input type="checkbox"/> Lindsay Concrete (formerly Stay-Right)		
<input type="checkbox"/> Mack Industries		
<input type="checkbox"/> MC Precast		
LINKS TO MANUFACTURERS <ul style="list-style-type: none"> <li>Concrete Pipe &amp; Precast : <a href="http://www.concretepipeandprecast.com/">http://www.concretepipeandprecast.com/</a></li> <li>Lindsay Concrete: <a href="http://lindsayprecast.com/index.php/precast-concrete-utility-products/">http://lindsayprecast.com/index.php/precast-concrete-utility-products/</a></li> <li>Mack Industries: <a href="http://www.mackconcrete.com/precastproducts.html">http://www.mackconcrete.com/precastproducts.html</a></li> <li>MC Precast: website is not available at this printing</li> </ul>		
Last Revision: <u>4/13/17</u> Effective Date: <u>    </u> , 2017		

## PRE-APPROVED MATERIAL/PRODUCT LIST

### Water

#### Above Ground Insulated Utility Enclosures

**Specification Section:** 33 12 13

**Standard Details:** 516.09, 516.10

**Standard:**

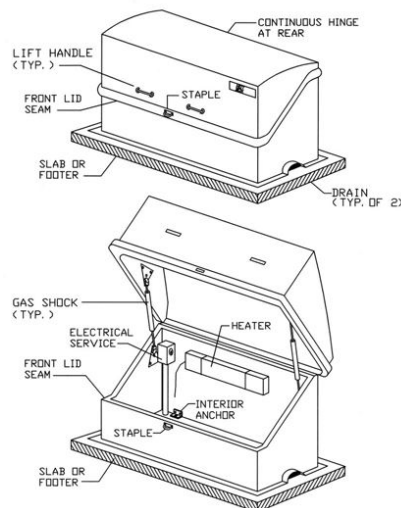
Enclosures for water systems  $\frac{3}{4}$ " through parallel 10" shall comply with ASSE Standard # 1060.

Unless the backflow prevention device is to be removed during cold weather, enclosures shall contain a heat source capable of maintaining 40°F inside enclosure when subjected to -30°F outside air temperature. Heat Class I heaters shall be independently certified for use in damp/wet conditions. Provide outlet on GFIC.

Enclosures shall be designed to support a minimum vertical load of 100 psf.

Depth of water within the enclosure shall not exceed 6 inches during full flow of the backflow preventer relief discharge.

Enclosure shall be designed to accessed and provide sufficient roof for testing and maintenance.



Approved Manufacturer/Product	Detail	Size
<input type="checkbox"/> Hubbell Power Systems (Hot Box)		
<input type="checkbox"/> Safe-T-Cover		
LINKS TO MANUFACTURERS • Hubbell Power Systems: <a href="http://www.hubbellpowersystems.com/enclosures/hotbox/default.asp">http://www.hubbellpowersystems.com/enclosures/hotbox/default.asp</a> • Safe-T-Cover: <a href="http://www.safe-t-cover.com/enclosures">http://www.safe-t-cover.com/enclosures</a>		
Last Revision: <u>4/14/17</u> Effective Date: <u>  </u> , 2017		